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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,130	12/18/2001	Mathew A. Rybicki	VIXS 034	5129
34280	7590	11/07/2005		
TIMOTHY W. MARKISON VIXS, INC. P.O.BOX 160727 AUSTIN, TX 78736			EXAMINER TSE, YOUNG TOI	
			ART UNIT 2637	PAPER NUMBER

DATE MAILED: 11/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

✓

Office Action Summary	Application No. 10/026,130	Applicant(s) RYBICKI ET AL.	
	Examiner YOUNG T. TSE	Art Unit 2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 14-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 28-33 is/are allowed.
- 6) ☒ Claim(s) 1-4, 9, 16, 17, 22 and 23 is/are rejected.
- 7) ☒ Claim(s) 5-8, 10, 14, 15, 18-21 and 24-27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings were received on July 29, 2005. These drawings are acceptable.

2. The drawings are objected to because the "Q-phase" labeled on the top portion of the newly submitted Figure 23 filed on July 29, 2005 should be labeled "In-phase".

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: page 4, lines 28 and 31, "invention; and" and "transmitter;" should be "invention;" and "transmitter; and" respectively. Appropriate correction is required.

Claim Objections

4. Claims 1-10 and 14-27 are objected to because of the following informalities:

In claim 1, line 3, "an aspect" should be "a first aspect" since lines 9-10 recite "a second aspect". Also see claim 16, line 3 and claim 22, line 7.

In claim 2, lines 4-5, "the aspect" should be "the first aspect". Also see claim 8 (line 6), claim 17 (line 4), claim 21 (line 5), claim 23 (line 5), and claim 27 (line 6).

In claim 3, line 5, "signal; and" should be "the signal as the composite amplified signal; and".

In claim 4, line 6, "the composite signal" should be "the composite amplified signal".

In claim 8, lines 9 and 10, "symbols" should be "the symbols". Also see claim 21 (lines 8 and 9) and claim 27 (lines 9 and 10).

In claim 10, line 22, "a plurality of biasing circuits" should be "a biasing circuit". Notice only one biasing circuit 162 is shown in Figure 20 and described on page 16, line 12 of the specification.

Wherein the dependent claims 5-7, 9, 14-15, 18-20 and 24-26 depend upon claims 1, 10, 16 and 22.

Appropriate correction is required.

Allowable Subject Matter

5. The indicated allowability of claims 1-4, 9, 16-17 and 22-23 is withdrawn in view of the newly discovered reference(s) to Arntz and Wright et al.. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-2, 9, 16-17 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Write et al. (newly cited) in view of Laroia (previously cited).

Wright et al. (US Patent No. 6,313,703 B1) discloses a plurality of LINC power amplifiers shown in Figures 2, 3A, 3B and 12.

Referring to Figure 3B, the power amplifier comprises a signal component separator 11 receives a transmit signal 12 to provide a plurality of signals; a digital compensation signal processor 21 corresponds to the plurality of signals to provide a plurality of compensated signals; an adaptive control processing and compensation estimator 28 corresponds to the plurality of signals to generate a control signal to control the digital compensation signal processor 21; a digital to analog converter 22 converts the compensated signal into analog signal; RF upconverters 23 and 24 convert the analog signals into RF signals; amplifiers 15 and 16 amplify the RF signals into amplified signals; and an amplifier power combiner 25 combines the amplified signals into a composite signal for transmission.

With respect to claims 1, 16 and 22, the signal component separator 11, the digital compensation signal processor 21 and the adaptive control processing and compensation estimator 28 together correspond to the signal partitioning module coupled to the transmitted signal 12 to produce a plurality of signal partitions; the digital to analog converter 22 and the upconverters 23 and 24 together correspond to the signal processing module coupled to process each of the plurality of signal partitions based on a second aspect of the transmission protocol to produce a plurality of processed signal partitions; the amplifiers 15 and 16 correspond to the plurality of amplifiers, wherein each of the plurality of the amplifiers amplifies corresponding one of the plurality of processed signal partitions to produce a plurality of amplified signal

partitions; and the amplifier power combiner 25 corresponds to the transmitting module coupled to transmit the plurality of amplified signal partitions as a composite amplified signal.

Wright fails to show or suggest that the transmitted signal 12 is generated from a signal generator to generate a signal to represent data based on a first aspect of a transmission protocol and a peak-to-average ratio.

Laroia (US 2002/0176510 A1) discloses an OFDM power amplifier transmitter in Figure 1, wherein the digital input signal input to a digital to analog converter 6 through a mixer or upconverter 7, a power amplifier 8 and an antenna 9 is derived from a data input via a digital complex symbol generator 2, a Fourier transform operator 3, a cyclic prefix generator 4, and a filter 5. See paragraphs [0009] and [0023].

Therefore, it would have been obvious to one of ordinary skill in the art to include a signal generator in Wright's transmitter for transmitting the transmitted signal 12 prior the digital to analog converter 22 as taught by Laroia in order to generate symbols to a digital circuit for performing digital signals prior the conversion the digital to analog converter.

In addition to claim 22, the signal component separator 11 and the digital compensation signal processor 21 are integrated in a real time processor and the adaptive control processing and compensation estimator 28 is integrated in a digital signal processor including software and memories (see Figure 13). Therefore, it would have been obvious to one of ordinary skill in the art that the processor and memories included in the adaptive control processing and compensation estimator 28 are capable

of performing the operation of the plurality of signal partitions, the plurality of processed signal partitions, the plurality of amplified signal partitions, and the composite amplified signal.

With respect to claims 2, 17 and 23, Laroia clearly shows that the signal generator for generating a signal to the digital to analog converter 6 comprises the digital complex symbol generator 2, the Fourier transform operator 3 and the filter 5.

With respect to claim 3, when the power transmitter shown in Figure 3B is used in a wireless communication system, it is obvious to one skill in the art that an antenna is required for transmitting the composite amplified signal, for example, to a wireless receiver circuit.

With respect to claim 9, although Wright does not explicitly show or suggest that each of the amplifiers 15 and 16 is a class A power amplifier having a selected output impedance. It is well known to a person skill in the art or the choice of design that a class A type power amplifier could be used in Wright's power amplifier transmitter if a selection of output impedance is needed.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al. in view of Laroia as applied to claim 2 above, and further in view of Arntz (newly cited).

Wright fails to show or suggest that the combined amplified signal is coupled to a plurality of antennas as recited in claim 4 for transmission.

Arntz (US Patent No. 5,646,631) discloses a power sharing amplifier network 22 and a redistribution circuit 24 in Figure 12 for transmission through a plurality of antennas 120-1 to 120-N.

Therefore, it would have been obvious to one of ordinary skill in the art to use a plurality of antennas in Wright's power amplifier transmitter for transmitting each of the power amplifier 15 and 16 to an individual antenna for transmitting the amplifier signals separately from each of the power amplifier as taught by Arntz in order for a receiver to select one of the strongest signal from one of the antennas.

Allowable Subject Matter

10. Claims 10 and 14-15 would be allowable if rewritten or amended to overcome the objection(s) set forth in this Office action.

11. Claims 5-8, 18-21 and 24-27 would be allowable if rewritten to overcome the objection(s) set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. Claims 28-33 are allowed.

13. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to show or suggest that a power transmitter comprises a signal partitioning module for generating a plurality of signal partitions including a signal slicing module slices a received signal at a first level to produce a first signal partition of the plurality of signal partitions and slices the received signal between the first level and a second level to produce a second signal partition of the plurality of signal partitions. Or a

power transmitter comprises a signal partitioning module for generating a plurality of signal partitions including a plurality of frequency-to-time conversion module, a plurality of filters, a plurality of digital-to-analog converters, and a plurality of RF up-converters. Or a power transmitter comprises a gating signal module for producing gating signals including a comparator and one of a biasing circuit and a disabling circuit.

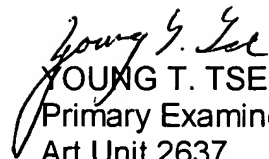
Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOUNG T. TSE whose telephone number is (571) 272-3051. The examiner can normally be reached on Monday-Thursday and alternative Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The Central FAX Number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Primary Examiner
Art Unit 2637